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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/693,010

10/23/2003

Patrick Brouhon

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9369

7590

03/23/2006

HEWLETT-PACKARD COMPANY

Intellectual Property Administration

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EXAMINER

SUN, XIUQIN

ART UNIT

PAPER NUMBER

2863

DATE MAILED: 03/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/693,010		BROUHON, PATRICK	
	<b>Examiner</b>		<b>Art Unit</b>	
	Xiuqin Sun		2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-20 and 23 is/are rejected.
- 7) ☒ Claim(s) 14, 21, 22 and 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/23/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date. _____  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Claim Objection***

1. Claims 20, 22 and 23 are objected to because of the following minor informalities:

Claim 20 recites the limitation "absolute stroke position". There is insufficient antecedent basis for this limitation in the claim.

Claim 22 recites the limitation "the sequence of stroke detection events". There is insufficient antecedent basis for this limitation in the claim.

Claim 23 recites the limitation "the stroke detection". There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

### ***Double Patenting***

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-4, 12, 13, 15 and 16 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over 1, 2 and 6 claims of copending application No.10/686,726. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matters of claims 1-4, 12 and 13 of the instant application is disclosed by the claims 1, 2 and 6 in the copending application and the claims of the present application has a broader scope than the claims in the copending application, as follows:

TABLE 1

#10693010 CLAIM	#10686726 CLAIM
1. A method of determining the time-varying absolute position of a device with respect to a surface having a position-encoded portion and an obscured portion, wherein the position-encoded portion bears accessible encoded position data and the obscured portion does not bear accessible position data, the method comprising the steps of:  moving the device with respect to the surface;	1. A hybrid printing device for printing on a surface, the device comprising:  a printing means adapted to print on the surface; and  a sensing means adapted to sense the position of the printing device in relation to positioning indicia located on the surface wherein the printing means is further adapted to be responsive to the detected position of the device in relation

<p>measuring a time-varying vector representing the relative movement of the device over the position-encoded portion and the obscured portion of said surface during motion of the device;</p> <p>measuring at least one absolute position of the device with respect to the position-encoded portion of said surface during a portion of said motion when said position-encoded portion of said surface is accessible; and</p> <p>initializing the position of the vector to the at least one absolute position measurement thereby measuring the absolute position of the vector and thus the time-varying absolute position of the device.</p>	<p>to the detected position.</p> <p>6. A hybrid printing device as claimed in claim 1 wherein the position of the sensing means, and hence the printing means, on the surface is determined by a combination of absolute position detection based on optical glyphs located on the surface and detection of movement of the sensing means relative to the surface, thereby, so long as at least one measurement of the absolute position is performed by the sensing means, the time-varying absolute position of the sensing means may be determined by reference to that absolute position and the movement of the sensing means relative to that absolute position.</p>
<p>2. A method of determining the absolute position of a stroke made by a measurement device with respect to a surface, said surface having embedded thereon position encoding indicia, the method comprising:</p> <p>moving the measurement device over the position-encoded surface, and whenever the measurement device passes over said one or more position encoding indicia, at any point of said motion, detecting one or more position encoding indicia thereby calculating at least one absolute position measurement of the device;</p> <p>in conjunction with the aforementioned detection, measuring the relative movement of the device with respect to the position-encoded surface and thereby calculating a time-varying motion vector representing the movement of the device with respect to the surface; and</p> <p>calculating the absolute location of the stroke</p>	<p>1. A hybrid printing device for printing on a surface, the device comprising:</p> <p>a printing means adapted to print on the surface; and</p> <p>a sensing means adapted to sense the position of the printing device in relation to positioning indicia located on the surface wherein the printing means is further adapted to be responsive to the detected position of the device in relation to the detected position.</p> <p>6. A hybrid printing device as claimed in claim 1 wherein the position of the sensing means, and hence the printing means, on the surface is determined by a combination of absolute position detection based on optical glyphs located on the surface and detection of movement of the sensing means relative to the surface, thereby, so long as at least one measurement of the absolute</p>

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with respect to the position-encoded surface on the basis of at least one measurement of the absolute position in combination with the time-varying motion vector.	position is performed by the sensing means, the time-varying absolute position of the sensing means may be determined by reference to that absolute position and the movement of the sensing means relative to that absolute position.
3. A method as claimed in claim 1 where the detection of the absolute position is achieved by non-contact optical means.	6. A hybrid printing device as claimed in claim 1 wherein the position of the sensing means, and hence the printing means, on the surface is determined by a combination of absolute position detection based on optical glyphs located on the surface and detection of movement of the sensing means relative to the surface, thereby, so long as at least one measurement of the absolute position is performed by the sensing means, the time-varying absolute position of the sensing means may be determined by reference to that absolute position and the movement of the sensing means relative to that absolute position.
4. A method as claimed in claim 1 wherein the detection of the time-varying vector is achieved by means of a non-contact relative optical measurement.	6. A hybrid printing device as claimed in claim 1 wherein the position of the sensing means, and hence the printing means, on the surface is determined by a combination of absolute position detection based on optical glyphs located on the surface and detection of movement of the sensing means relative to the surface, thereby, so long as at least one measurement of the absolute position is performed by the sensing means, the time-varying absolute position of the sensing means may be determined by reference to that absolute position and the movement of the sensing means relative to that absolute position.
12. A measurement device for determining the time-varying absolute position of the	1. A hybrid printing device for printing on a surface, the device comprising:

<p>device with respect to a surface having a position-encoded portion with accessible encoded position data and an obscured portion where encoded position data is not accessible, said device including:</p> <p>a first measuring device arranged to determine at least one absolute position of the device with respect to the position-encoded portion of said surface;</p> <p>a second measuring device arranged to determine a time-varying vector representing the relative movement of the device with respect to the surface, wherein the first measuring device is further arranged to determine said at least one absolute position of the device at any time while said second measuring device is determining said time-varying vector;</p> <p>processing means adapted to initialize the position of the vector to the at least one absolute position measurement so as to output a signal representing the absolute position of the vector and thus the time-varying absolute position of the device.</p>	<p>a printing means adapted to print on the surface; and</p> <p>a sensing means adapted to sense the position of the printing device in relation to positioning indicia located on the surface wherein the printing means is further adapted to be responsive to the detected position of the device in relation to the detected position.</p> <p>6. A hybrid printing device as claimed in claim 1 wherein the position of the sensing means, and hence the printing means, on the surface is determined by a combination of absolute position detection based on optical glyphs located on the surface and detection of movement of the sensing means relative to the surface, thereby, so long as at least one measurement of the absolute position is performed by the sensing means, the time-varying absolute position of the sensing means may be determined by reference to that absolute position and the movement of the sensing means relative to that absolute position.</p>
<p>13. A measurement device for determining the absolute position of a stroke made by the measurement device with respect to a surface, said surface having embedded thereon position encoding indicia, the measurement device including:</p> <p>a first measuring device arranged to detect one or more position encoding indicia and determine at least one absolute position measurement of the device;</p> <p>a second measuring device arranged to measure the relative movement of the device with respect to the surface and output a time-varying motion vector</p>	<p>1. A hybrid printing device for printing on a surface, the device comprising:</p> <p>a printing means adapted to print on the surface; and</p> <p>a sensing means adapted to sense the position of the printing device in relation to positioning indicia located on the surface wherein the printing means is further adapted to be responsive to the detected position of the device in relation to the detected position.</p> <p>6. A hybrid printing device as claimed in claim 1 wherein the position of the</p>

<p>representing the movement of the device with respect to the surface, wherein the first measuring device is provided for determining said at least one absolute position of the device whenever the first measuring device passes by said one or more position encoding indicia during the relative movement of the measurement device; and</p> <p>processing means adapted to calculate the absolute location of the stroke with respect to the surface on the basis of the at least one measurement of the absolute position in combination with the measurement of the time-varying motion vector.</p>	<p>sensing means, and hence the printing means, on the surface is determined by a combination of absolute position detection based on optical glyphs located on the surface and detection of movement of the sensing means relative to the surface, thereby, so long as at least one measurement of the absolute position is performed by the sensing means, the time-varying absolute position of the sensing means may be determined by reference to that absolute position and the movement of the sensing means relative to that absolute position.</p>
<p>15. A device as claimed in claim 12 wherein the first and second measuring devices are incorporated into a common optical sensing device.</p>	<p>1. A hybrid printing device for printing on a surface, the device comprising:</p> <p>a printing means adapted to print on the surface; and</p> <p>a sensing means adapted to sense the position of the printing device in relation to positioning indicia located on the surface wherein the printing means is further adapted to be responsive to the detected position of the device in relation to the detected position.</p> <p>6. A hybrid printing device as claimed in claim 1 wherein the position of the sensing means, and hence the printing means, on the surface is determined by a combination of absolute position detection based on optical glyphs located on the surface and detection of movement of the sensing means relative to the surface, thereby, so long as at least one measurement of the absolute position is performed by the sensing means, the time-varying absolute position of the sensing means may be determined by reference to that absolute position and</p>



	the movement of the sensing means relative to that absolute position.
16. A device as claimed in claim 12 wherein the device has a pen form-factor or alternatively, a mouse form-factor.	2. A hybrid printing device as claimed in claim 1 having a handheld form-factor.

This is a provisional obviousness-type double patenting rejection since the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5-9 and 23 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending application No.10/686,726 to Brouhon in view of Silverbrook et al. (U.S. Pat. No. 6792165).

Brouhon teaches the method and device including the subject matter discussed above. Brouhon does not claim expressly: the detection of the at least one absolute position is performed by imaging a glyph bed which is applied to the surface; wherein the glyph bed is a machine-readable array of marking having absolute positions encoded therein; wherein the glyph bed is invisible to the human eye or alternatively adapted to not substantially interfere with the appearance of the surface when viewed

by the human eye; wherein the glyph bed is applied using ink which is visible in the infrared part of the spectrum; the surface is overprinted with human-readable material in such a way as to obscure a portion of the glyph bed to thereby define at least part of said obscured portion of said surface; and providing feedback to a user as to whether the stroke detection is successful or not, preferably in real time.

Silverbrook et al. teach a sensing device and method, including: performing a detection of the at least one absolute position by imaging a glyph bed which is applied to a surface (col. 5, lines 54-67; col. 13, lines 52-67 and col. 6, lines 10-24); wherein the glyph bed is a machine-readable array of marking having absolute positions encoded therein (col. 5, lines 54-67; col. 13, lines 52-67 and col. 6, lines 10-24); wherein the glyph bed is invisible to the human eye or alternatively adapted to not substantially interfere with the appearance of the surface when viewed by the human eye (col. 5, lines 54-67; col. 13, lines 52-67 and col. 6, lines 10-24); wherein the glyph bed is applied using ink which is visible in the infrared part of the spectrum (col. 5, lines 54-67); the surface is overprinted with human-readable material in such a way as to obscure a portion of the glyph bed to thereby define at least part of said obscured portion of said surface (col. 6, lines 10-24); and providing feedback to a user as to whether the stroke detection is successful or not, preferably in real time (col. 19, lines 23-36).

It would also have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching of Silverbrook with Brouhon in order to provide a system that most closely emulates the use of pen/pencil and paper (Silverbrook et al., Abstract and Figs. 1-8).

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6. Claims 10, 11 and 17-19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending application No. 10/686,726 to Brouhon in view of Kinrot et al. (U.S. Pat. No. 6,741,335).

Brouhon teaches the method and device including the subject matter discussed above. Brouhon does not claim expressly: the detection of the relative position of a time-varying vector representing the movement of the device with respect to the surface is preferably measured using heterodyne or homodyne detection of non-doppler, non-speckle image signals derived from changes in the phase and/or the amplitude of reflection from an optical surface; the detection of the relative position of the time-varying vector representing the movement of the device with respect to the surface is measured using a transducer-based arrangement; said device includes additional support circuitry adapted to store stroke data; said device includes communications circuitry adapted to transmit stroke data to a control means such as a computer; and said the device operates by buffering the stroke data for user-activated upload, or communicating the stroke data in real-time, or being responsive to a user's command to upload stroke data to a control means.

Kinrot et al. disclose a method and measurement device for determining the relative motion of a surface with respect to the measurement device, and teach: the detection of the relative position of a time-varying vector representing the movement of the device with respect to the surface is preferably measured using heterodyne or homodyne detection of non-doppler, non-speckle image signals derived from changes in the phase and/or the amplitude of reflection from an optical surface (col. 6, lines 54-

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58; col. 9, lines 60-67; col. 10, lines 1-6 and col. 13, lines 16-62); the detection of the relative position of the time-varying vector representing the movement of the device with respect to the surface is measured using a transducer-based arrangement (col. 26, lines 36-58); said device includes additional support circuitry adapted to store stroke data (col. 29, lines 5-27); said device includes communications circuitry adapted to transmit stroke data to a control means such as a computer (col. 29, lines 5-27); and said the device operates by buffering the stroke data for user-activated upload, or communicating the stroke data in real-time, or being responsive to a user's command to upload stroke data to a control means (col. 29, lines 5-27).

It would also have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Kinrot measurement device in the teaching of Brouhon in order to use a different but more accurate non-contact optical mechanism to measure a time-varying vector representing the movement of the device in respect to the surface (Kinrot et al., col. 6, lines 37-53).

7. Claim 20 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending application No.10/686,726 to Brouhon in view of Nagai et al. (U.S. Pub. No. 20010055063).

Brouhon teaches the method and device including the subject matter discussed above. Brouhon does not claim expressly: the detection of absolute position is interrupted, attempting to interpolate across the interrupted area.

Nagai et al. teach a method and device for determining the time-varying absolute position of a device with respect to a surface, including: a detection of absolute position is interrupted, attempting to interpolate across the interrupted area (section 0054).

It would also have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Nagai et al. into the teaching of Brouhon in order to provide more accurate and complete measurements of the time-varying absolute position (Nagai et al., section 0054).

#### ***Allowable Subject Matter***

8. Claims 14, 21, 22 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Reasons for Allowance***

9. The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claim 14 is the inclusion of the limitation that said device includes a first and second optical system, the first optical system adapted to image a glyph bed arranged to encode the absolute position onto the surface, and the second optical system adapted to determine the relative movement of the device with respect to the surface. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 21 is the inclusion of the claimed method step of sanity checking interpolation and stroke reconstruction based on the statistically possible locations of strokes applied to the surface. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 22 is the inclusion of the claimed method step of sanity checking absolute position measurements in respect of the sequence of stroke detection events of a surface by reference to user ergonomics, physical size of the surface, type of stroke applied or the speed of application of the stroke. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 24 is the inclusion of the limitation that the claimed method is adapted to detect the absolute position of a plurality of strokes, said strokes constituting writing, wherein sanity checking of the absolute position detection is performed based on a forward looking probabilistic algorithm responsive to the physical writing environment and process. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Prior Art Citations***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- 1) Sekendur (U.S. Pat. No. 5852434) discloses a method and apparatus for absolute optical position determination.
- 2) Pettersson et al. (WO 0126032A) disclose an encoded paper for optical reading.
- 3) Idemura (U.S. Pat. No. 6788888) discloses an optical device and image sensing system.
- 4) Gordon-Ingram (U.S. Pat. No. 6603115) discloses a measurement scale and system incorporating a measurement scale for determining absolute position.

### ***Response to Arguments***

11. Applicant's arguments received 03/01/06 with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

Upon further consideration, the allowable subject matter of claims 12, 13 and 15-19 as indicated in the last Office Action mailed on 12/20/2005 has been withdrawn and replaced by the above office action.

Claims 1-13, 15-20 and 23 are rejected as new grounds of rejection have been found from the copending application No.10/686,726 to teach the claimed invention in the instant application. Detailed response is given in sections 3-8 as set forth above in this Office Action.

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**Contact Information**

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiuqin Sun whose telephone number is (571)272-2280.

The examiner can normally be reached on 6:30am-4:00pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571)272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Xiuqin Sun  
Examiner  
Art Unit 2863

XS

March 20, 2006

  
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